Development and Validation of a Rubric for Self-Assessment of 21st Century Skills at Primary Schools

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Introduction

What are 21st century skills?

‘21st Century skills are generally characterized as being transversal, multidimensional, and associated with higher order skills and behaviors that represent the ability to cope with complex problems and unpredictable situations.’ (OECD, 2005)

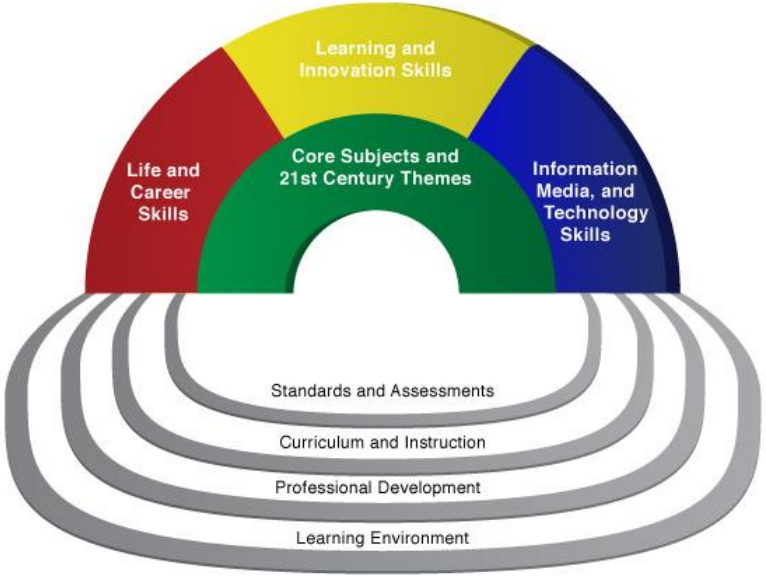
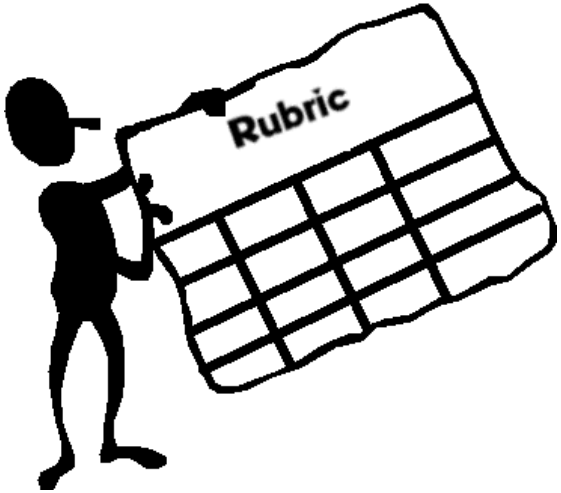


Image source: http://www.p21.org/our-work/p21-framework

Why a rubric?



- Useful for measuring cognitive skills (Van den Bos et al., 2014)
- Assess product and process (Ledoux et al., 2013)
- Make expectations explicit (Jonsson& Svingby, 2007)
- Describes indicators of quality (Holmes & Oakleaf, 2013)
- Provide teachers to systematic feedback (Deci &Ryan, 2008)
- Self insight (Halonen et al., 2003,; Jonsson & Svingby, 2007; Panadero &Jonsson, 2013)
- Support self regulation (Kerkhoffs et al., 2006)

Requirements

- Equally point scale (Newell, Dahm & Newell, 2002)
- Use pupil language (SLO, 2004)
- Use positive language (Kerkhoffs et al., 2006)
- Describe concrete behaviour (Jonsson & Svingby, 2007)
- From left to right: low to high (SLO, 2006)

Examined questions

- Is the developed rubric a valid tool to assess the performance of 21st century skills of primary school pupils?
- Does the rubric help teachers with providing concrete feedback to pupils while practicing 21st century skills compared to a learning situation without a rubric?
- To what degree is the assessment of pupils and teachers comparable and consistent?
- Does the rubric help pupils to set concrete and visible learning objectives?

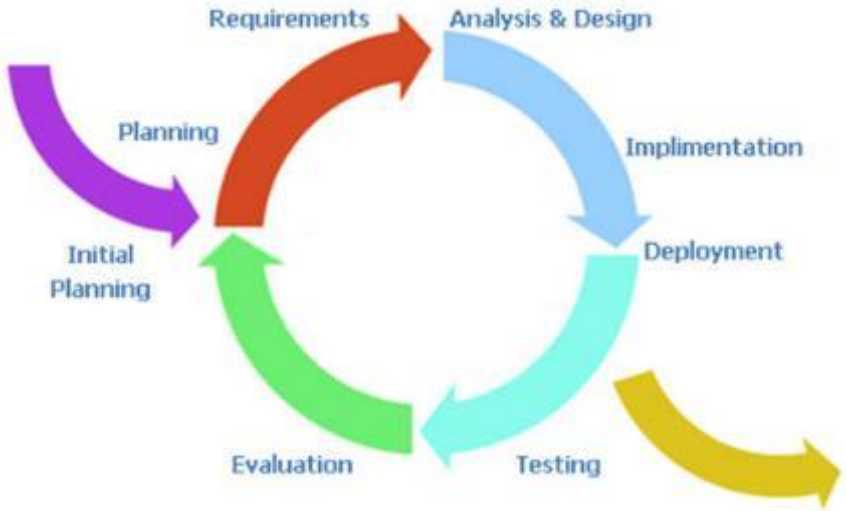
Method (1) Developing and validating the rubric

Participants:

4 teachers of class 5-8

4 pupils of class 5-8

5 experts



Source imgage:(www.mrjose.ph/action-research-and-iterative-design-methods

Method (2) Testing and Implementing

Feedback

- Observations
- Interview 2 teachers
- Interview 8 pupils

Comparing self-assessment

- Experiment
- (*N*=105 pupils) of 4 classes

Comparing learning objectives

- Pre experiment
- (*N*= 56 pupils) of 2 classes

Results (1) Validation of the rubric

Table 1. *item of the rubric*

	Starter	Trained	Advanced	Talented
Chose information on the internet	I use internet information.	I only use internet information when the author is known.	I only use internet information when the author is known and when I can recall the information.	I only use internet information when the author is an expert and when I can recall the headlines in my own words.

Results (2)
Does the rubric help teachers with providing concrete feedback to pupils?

Results (3)

Consistency

- >70 % same scoring was only reached in control group (class 6) on 3 items
- The correlation of the experimental group was r =.63, p = 0,00.
- The correlation of the control group was r =.65, p = 0,00.

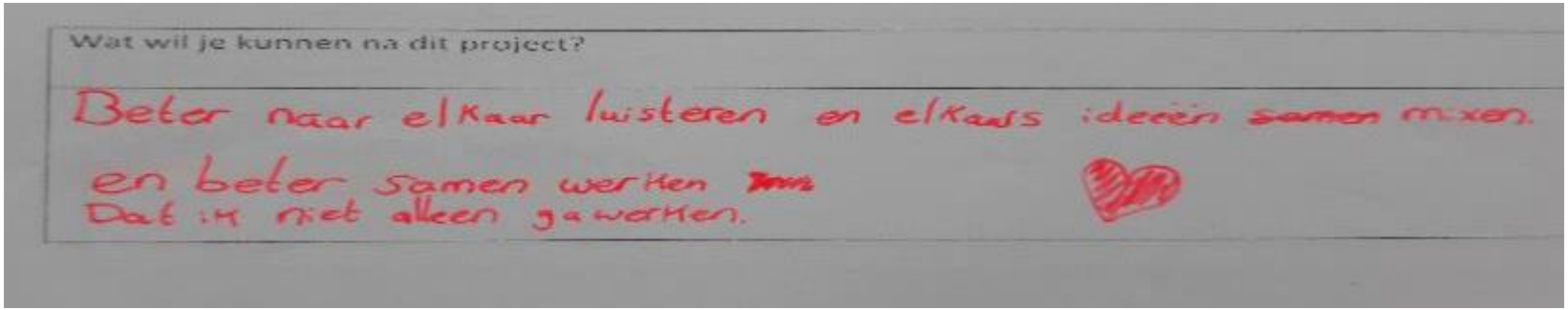
Results (3)

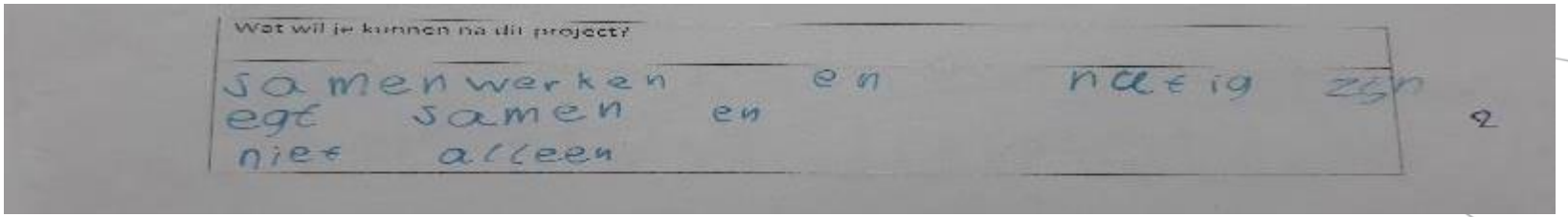
Consensus

Table 2. *scoring consensus*

	Experimental group *M* (*SD*)	Control group *M* (*SD*)
Students	37,03 (9,55)	41,44 (7,78)
Teachers	29,10 (12,39)	37,19 (8,80)
	t(48)= 5,68, *p* < 0,05, 95% CI [5,12 - 10,73], one-tailed	*t*(42)= 3,96, *p* <0,05, 95% CI [2,09- 6,43], one- tailed

Results (4)

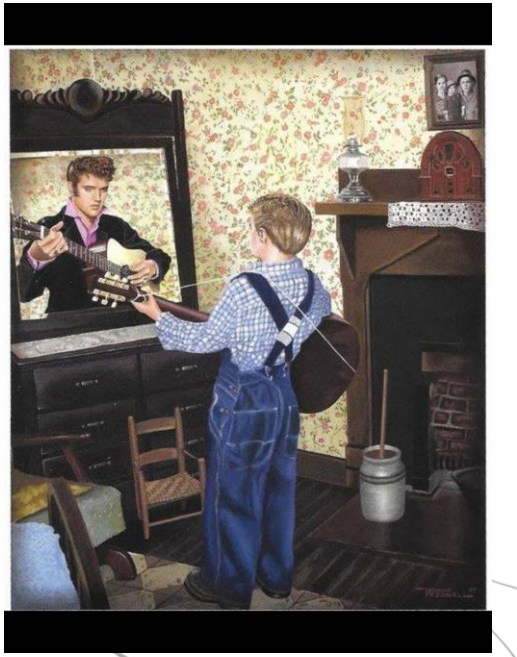




Dependent t-test: $t(54) = -2{,}11$, $p < 0{,}05$, 95% CI [-0,39 – -0,01], one-tailed.

Conclusion and discussion

- The rubric was validated
- Used for giving feedback
- No reliable self- assessment
- Significant more concrete learning objectives



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The content of the rubric is based on:

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Statement

- Go to www.menti.com and use the code 78397